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Log#2253



## National Transportation Safety Board

Washington, D.C. 20594  
Safety Recommendation

DCA 89MA074

Date: August 3, 1990

In reply refer to: A-90-104 thru -108

Honorable James B. Busey  
Administrator  
Federal Aviation Administration  
Washington, D.C. 20591

On September 20, 1989, USAir, Inc. flight 5050 was an "extra section" passenger flight to replace the regularly scheduled but cancelled flight 1846 from New York City's LaGuardia Airport, Flushing, New York, to Charlotte Douglas International Airport, Charlotte, North Carolina. As the first officer began the takeoff on runway 31, he felt the airplane drift left. The captain noticed the left drift also and used the nosewheel tiller to help steer. As the takeoff run progressed, the aircrew heard a "bang" and a continual rumbling noise. The captain then took over and rejected the takeoff but did not stop the airplane before running off the end of the runway into Bowery Bay. The accident occurred in darkness. Both pilots and the four cabin crewmembers had minor injuries. Two of the 57 passengers were killed and 15 had minor or serious injuries.<sup>1</sup>

The Safety Board's investigation of the accident revealed several areas of concern related to the emergency response to the accident: lack of standards for the design, construction, operation and performance of megaphones; inadequate and untimely accounting of persons aboard aircraft and of persons recovered from accident; and inadequate cockpit and cabin crewmember skills relevant to inadvertent water impact. In addition, results of the investigation underscore the need for procedures for a modified or full acceptance checklist if the flightcrew vacates the cockpit temporarily. Finally, a need for additional remedial action on the issue of flightcrew experience and pairing was identified.

### Megaphones

Problems were experienced with one of the two hand-held, battery-powered cabin megaphones required aboard the aircraft. The other megaphone was not used. The lead flight attendant tried to use the megaphone to issue evacuation commands. However, the megaphone's design required him to turn the control knob to the left, contrary to established ergonomic principles, and his commands resulted in "squelching" from the increased volume. Thus, he determined that

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<sup>1</sup>For more detailed information, read Aircraft Accident Report--USAir, Inc. flight 5050, Boeing 737-400, N416US, Flushing, New York, September 20, 1989 (NTSB/AAR-90/03).

yelling the commands was more effective. In addition, the megaphone ceased operating after it got wet because it was not waterproof.

The FAA has no Technical Standards Order for the design of portable cabin megaphones. Therefore, the Safety Board believes that standards should be developed for the design, construction, operation and performance of megaphones.

#### Accounting of Passengers

In addition to search and rescue operations being hampered by darkness and floating debris, rescue personnel did not know how many persons were onboard the airplane, how many were in the water, and how many had been taken from the scene of the accident. Therefore, the Safety Board believes that the FAA should require airlines to provide an accurate and timely accounting of persons aboard the accident aircraft, as well as to assist in determining the disposition of persons who have been recovered from the scene of an accident.

#### Crew Skills after Water Impact

Among other rescuers, the captain and flight attendants assisted in passenger rescue efforts. The quick thinking and initiative of flight attendants, who were not required by the FAA to receive ditching training in the water, expedited the evacuation of passengers from the aircraft. They remained in control of the situation under trying circumstances, and two attendants linked arms to support two passengers who could not swim.

In response to Safety Board recommendation A-85-49 on July 2, 1985, the FAA issued an Air Carrier Operations Bulletin (ACOB) promoting but not requiring "wet drills" for flight attendants. The Safety Board believes that an ACOB is an inadequate means for prompting such training for flight attendants and that regulation is needed. Thus, the Safety Board reiterates this recommendation for periodic "wet drills" not only for cabin crewmembers but for cockpit crewmembers.

#### Flightcrew Checklist

In this accident, neither the captain nor the first officer were reportedly away from the cockpit at the same time prior to takeoff. However, to preclude the inadvertent placement of aircraft system components, such as the rudder trim knob in this accident, by visitors to the cockpit, the Safety Board believes that the FAA should require air carriers to adopt procedures for a modified or full acceptance checklist in the event the flightcrew vacates the cockpit.

#### Flightcrew Experience and Pairing

The Safety Board previously issued Safety Recommendation A-88-137 asking the FAA to specify minimum experience for each pilot-in-command and second-in-command and to prohibit the pairing of pilots on the same flight who have less than the minimum experience at their respective positions. The FAA determined that rulemaking was unnecessary. However, the Safety Board is encouraged by the FAA's more recent efforts to solicit industry recommendations on the crew pairing issue and its apparent willingness to reconsider rulemaking action on the

subject. Therefore, the Safety Board believes that the FAA should initiate rulemaking on an expedited basis.

Based on the FAA's recent actions and apparent commitment to work toward rulemaking on this issue, the Safety Board has classified Safety Recommendation A-88-137 as "Open-Acceptable Action."

In response to the FAA's request for recommendations on crew pairing a special Crew Pairing Committee was formed, composed of government and industry representatives, which has met several times since last December. The Committee has developed preliminary recommendations that call for more structured initial operating experience for newly trained pilots and more timely completion of it; impose operating restrictions under specified weather and other conditions; and prohibit the pairing on the same flight of pilots who have less than a specified minimum experience in their respective positions.

In addition to restrictions on crew pairing, the Committee's recommendations stressed the importance of concerted, uninterrupted period of line operating time, including Initial Operating Experience (IOE) to foster the consolidation and stabilization of pilots' newly-acquired knowledge and skills. The Committee recommended that the consolidation period begin at the initiation of IOE, of 100 hours of line operating time, and be completed within 120 days. Failure to complete consolidation within this time would require observation of two satisfactory cycles by a line check airman before continuation of the program.

Additionally, with regard to crew pairing restrictions, the FAA initially suggested to the Committee that an initial pilot-in-command and an initial second-in-command pilot not be paired together if both have less than 150 hours, including IOE, in the position on the airplane in which they have most recently qualified. The Committee has recommended less than 150 hours.

The committee is currently revising and refining its recommendations based on comments received from the FAA. The FAA has informally advised the Committee that it intends to initiate a proposed rulemaking project, based in part on these recommendations, to amend its air carrier flight crew operating experience regulations.

The Safety Board supports the intent of the Crew Pairing Committee recommendations concerning the consolidation of pilots' recently-acquired training. However, it is concerned that completion of the specified amount of line operating time over a 120-day period may not provide a regular and concentrated exposure to achieve the desired effect. Moreover, newly-trained air carrier pilots normally are initially scheduled on "reserve" or on an "on-call" basis and, as a result, may not fly at regular and frequent intervals. This irregularity of exposure also could detract from the intended consolidation of learning. Accordingly, the Safety Board believes that the FAA should urge air carriers to schedule newly-trained captains and first officers on regular trip sequences immediately following the training session, until they accrue a prescribed amount of line operating time in their respective positions, in order to consolidate their recently-acquired training.

In view of the circumstances of this accident, the Safety Board believes that the crew pairing minimum flight hour limitation, including IOE, should not be less than 150 hours. Furthermore, the Safety Board believes operators should be required to pair not only a captain who has a relatively high level of experience with a first officer of relatively low level of experience, but also should require that a captain with relatively low level of experience be scheduled with a first officer with relatively high level of experience. In this manner, flight crewmembers' relative experience levels would complement and compensate one another rather than counteract one another, as illustrated by this accident. Therefore, the Safety Board believes FAA should amend the air carrier regulations to specify a combined experience level for initial pilot-in-command and initial second-in-command pilots which would preclude the pairing of two pilots, each of whom has relatively low experience in his or her respective position.

Therefore, as a result of this accident, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Develop standards for the design, construction, operation, and performance of megaphones. (Class II, Priority Action) (A-90-104)

Require airlines to provide airport crash/fire rescue personnel accurate and timely numbers of all persons aboard an accident/incident aircraft, and to provide assistance in determining the disposition of persons who have been recovered from the scene of an accident. (Class II, Priority Action) (A-90-105)

Require air carriers to adopt procedures that would result in the completion of a modified or full acceptance checklist whenever the flightcrew has vacated the cockpit. (Class II, Priority Action) (A-90-106)

Issue an Air Carrier Operations Bulletin directing all Principal Operations Inspectors to urge air carriers to schedule newly-trained captains and first officers on regular trip schedules immediately following completion of training, until they accrue a prescribed amount of line operating time in their respective positions in order to consolidate their recently-acquired training. (Class II, Priority Action) (A-90-107)

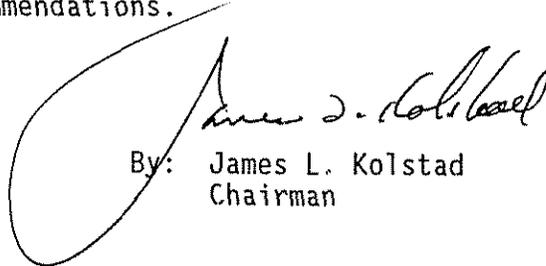
Amend 14 CFR 121.385 to specify a combined experience level for initial pilot-in-command and initial second-in-command pilots which would preclude the pairing of two pilots, each of whom has relatively low experience in his or her respective position. (Class II, Priority Action) (A-90-108)

Also, as a result of this accident, the National Transportation Safety Board reiterates the following recommendation to the Federal Aviation Administration:

A-85-49

Amend 14 CFR 121, 125, and 135 to require that cockpit and cabin crewmembers on aircraft being operated under these Parts be given periodic training, including hands-on "wet" drills, in the skills relevant to inadvertent water impact that may increase the chances of post-crash survival. (Class II, Priority Action)

KOLSTAD, Chairman, COUGHLIN, Acting Vice Chairman, LAUBER and BURNETT, Members concurred in these recommendations.



By: James L. Kolstad  
Chairman